Mildew inhibitor for feed

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Abstract of **CN1269979**

A mildew inhibitor for feed is prepared from potassium sorbate or sodium benzoate and formic acid or acetic acid or propionic acid through reaction. Its advantages are high safety, stable quality, good enjoyment to eat it, high effect to suppress and kill microbes in feed, and long storage period of feed (longer than 2 months).

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Patent Specifications: 1 page
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Illustrations: 0 page

[54] Name of Invention: Hybrid Mildew Inhibitor For Feed

[57]Abstract:
This invention is a chemical agent for inhibiting mildew in feed, prepared from the reaction of potassium sorbate or sodium benzoate and formic aid or acetic acid or propionic acid. With a strong inhibiting and antiseptic effect on microbes that threaten feed, it has the advantages of high safety, reliability and palatability and consistent quality. Proper use of this invention can help preserve animal feed for more than two months.

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Patent Specifications

1. Under Patent Specification 1, the ~~Hybrid~~ Compound Mildew Inhibitor for Feed is prepared from the double decomposition reaction between organic salts and organic acids in the ratio (by mass) of 1.0 : 0.3—1.0.
2. The organic salts used in manufacturing the ~~Hybrid~~ Compound Mildew Inhibitor For Feed as described in Patent Specification 1 are potassium sorbate or sodium benzoate or any combination of the two.
3. The organic acids used in manufacturing the ~~Hybrid~~ Compound Mildew Inhibitor For Feed as described in Patent Specification 1 or 2 are formic acid or acetic acid or propionic acid or any combination of these.

Prospectus

Hybrid Mildew Inhibitor For Feed

This invention is a preservative for inhibiting mildew in the transport and storage of various types of feed.

At present, the fodder industry is flourishing, accounting for an increasing proportion of the overall national economy. Yet, owing to contamination by microbes, the fodder industry has always been beset with problems of decay and moulds, and an antiseptic mildew inhibitor has to be added in the feed for antistaling purposes. The mildew inhibitors commonly used nowadays broadly fall into two categories: single inhibitors and hybrid (compound) inhibitors. Single inhibitors typically contain organic salts (e.g. formates, acetates, propionates, sorbates and benzoates) or organic acids (e.g. formic acid, acetic acid, sorbic acid and benzoic acid), and these make up more than 90% of the constituents. Their major drawback is a narrow antibiotic spectrum and hence inadequate bacteriostatic qualities. On the other hand, recent years have seen major developments in hybrid inhibitors. But since hybridisation is basically done by mechanical or physical means, the synergy between the constituent groups leaves something to be desired. Further improvements are necessary to realise their bacteriostatic potential.

The purpose of this invention is to produce a new kind of mildew inhibitor for feed by chemical means. Synergy is enhanced by the interaction between the molecules of the constituent groups, bringing the bacteriostatic power into full play. The constituents compensate for each other, broadening their overall antibiotic spectrum. Inputs of inhibitors and hence costs are thereby reduced.

This invention, known as the Hybrid Mildew Inhibitor For Feed, is prepared from the double decomposition reaction between organic salts and organic acids. The organic salts used are potassium sorbate ($CH_3CH=CHCH=CHCOOK$) or sodium benzoate or any combination of the two. The organic acids used are formic acid($HCOOH$) or acetic acid(CH_3COOH) or propionic acid(CH_3CH_2COOH) or any combination of these. Reaction takes place between the organic salts and the organic acids in the mildew inhibitor in the ration (by mass) of 1.0 : 0.3—1.0. A measured quantity of organic salt is first crushed to a fineness of a 60 —150 mesh count, and a measured quantity of organic acid is then added. The nixture is allowed to react completely at constant temperature. The product is crushed to a suitable fineness in mesh count to give the desired Hybrid Mildew Inhibitor For Feed.

This novel mildew inhibitor has a strong suppressing and antiseptic effect on major bacteria and moulds that threaten animal feed. Tests have revealed that proper use of this invention can help preserve animal feed for more than two months. Besides, the ingredients used are state-approved food additives, making this new mildew inhibitor safe, reliable, consistent in quality and highly palatable.

Examples of implementation:

Example 1:

Crush 100g of potassium sorbate to a mesh count of 100 and place in a container. Add 30 g of formic acid and allow the mixture to react completely at constant temperature. The product is crushed to give the mildew inhibitor.

Example 2:

Crush 100g of potassium sorbate to a mesh count of 100 and place in a container. Add 80 g of acetic acid and allow the mixture to react completely at constant

temperature. The product is crushed to give the mildew inhibitor.

Example 3:

Crush 100g of potassium sorbate to a mesh count of 100 and place in a container. Add 50 g of propionic acid and allow the mixture to react completely at constant temperature. The product is crushed to give the mildew inhibitor.

Example 4:

Mix 50 g of potassium sorbate with 50g of sodium benzoate and crush the mixture to a mesh count of 100. Place the mixture in a container and add another mixture of 20g of formic acid and 20g of propionic acid. Allow the hybrid to react completely at constant temperature. Crush the product to give the mildew inhibitor.

Example 1:
Crush 100g of potassium sorbate to a mesh count of 100 and place in a container. Add 30 g of formic acid and allow the mixture to react completely at constant temperature. The product is crushed to give the mildew inhibitor.

All the examples 1 to 4 have similar procedures, and the products are crushed to give the inhibitor.

Molar ratios of the ingredients:

	Ex. 1	Ex. 2	Ex. 3	Ex. 4	MW	(pK_a)
Formic acid	0,65			0,43	46	(3,7)
Acetic acid		1,33			60	(4,7)
Propionic acid			0,68	0,27	74	(4,9)
K sorbate	0,67	0,67	0,67	0,33	150	(4,8)
Na benzoate				0,35	144	(4,1)

1	sorbic acid	+ K formate
2	sorbic acid	+ K diacetate
3	sorbic acid	+ K propionate
4	sorbic acid	+ benzoic acid + K,Na formate, propionate

K-sorbaatti : happo 1:0,3 — 1:1